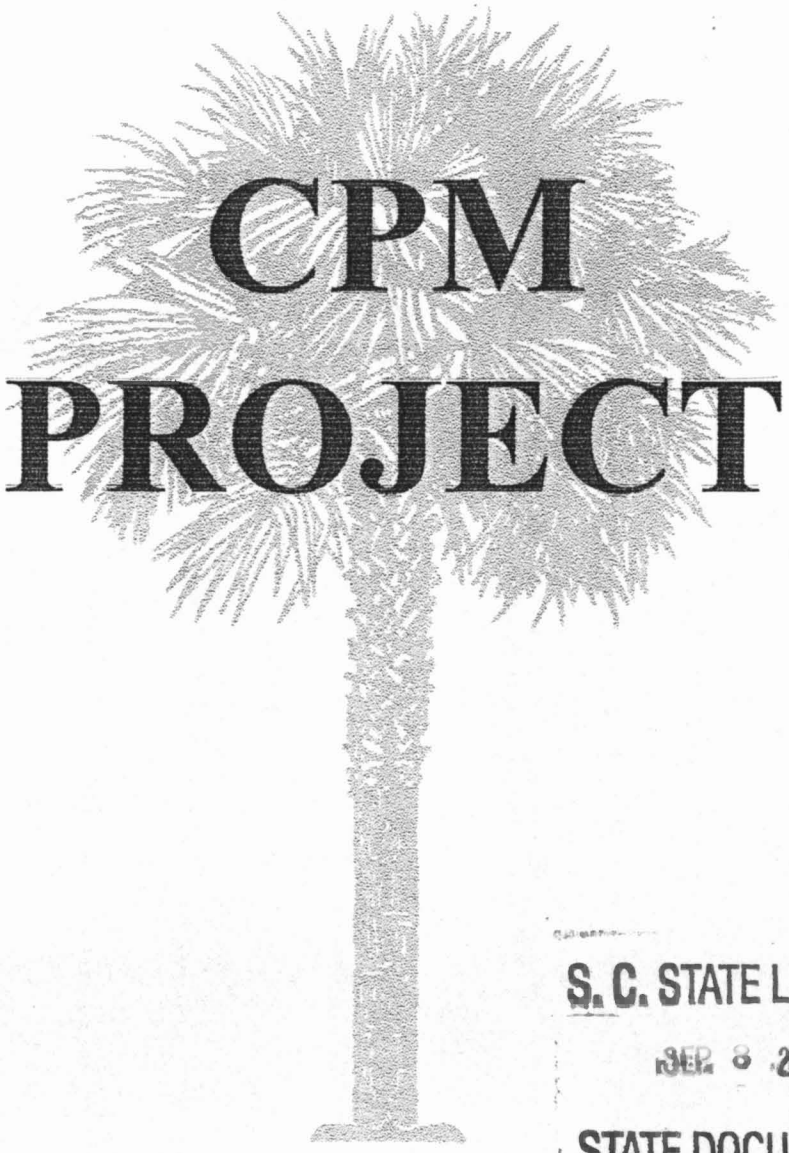
CPM PROJECT



S.C. Budget and Control Board

Office of Human Resources

Certified Public Manager Project
January 2003

Re-engineering the Computer Services Help Desk

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Introduction and Background

Computer Services at the University of South Carolina, under the direction of the Chief Information Officer, provides computing assistance and consulting services to Faculty, Staff, and Students. Computer Services has departments that specialize in the major areas of technology, end user service and support (Technical Service and Support and Academic Services), application development (Administrative Information Systems), data networking (LAN/WAN and Infrastructure Planning), voice communications (Telephony), mainframe systems (Systems), operations (Operations and the Business Office), and training (IT Training and Support). This organizational structure is not how Computer Services was originally formed. The last two decades of the twentieth century were a time of unprecedented growth in the development of new technologies in personal computing and communications. This rapid growth and development placed ever increasing demands on Computer Services, and in an effort to cope with the frenzied pace of change, Computer Services underwent many organizational and functional changes. The increase in the demands and the stress of constant change gradually led to an environment where these departments were primarily focused on their area alone resulting in limited communication among departments and ultimately dissatisfied customers.

Each department had their own support structure in place to provide help for the questions and problems posed to their area. There were different phone numbers to call and procedures to follow depending on the issue. Compounding the problem, there were non-technical administrative staff answering the phones in each area that were generally unable to resolve problems without assistance from the technicians. This often caused

confusion and frustration to customers seeking assistance. Problems frequently required multiple departments to work together to reach a resolution and the user would get bounced back and forth between departments. For example, when an employee wanted to request a new data line and telephone line, they were required to call two different departments within Computer Services, place separate requests following disjointed procedures, explain their needs repeatedly to the administrative and technical staff, and would often have different technicians show up at various times to complete the work. Technicians were not held accountable for reporting the work that was performed, which caused problems with the billing of their labor and materials, and lost revenue. It was a disorganized approach to providing service and support. Consequently, Computer Services had a bad reputation and people were reluctant to call for help.

In October 2001, the Computer Services Help Desk was formed to consolidate support for the following selected departments: Academic Services, Infrastructure Planning, LAN/WAN, Technical Services and Support, Telephony, and Training. These departments were chosen because the services they provide are often interrelated. There was a reorganization of the administrative staff responsible for fielding user requests, the process of documenting the procedures from each area began, and common telephone numbers were forwarded to one main Help Desk phone number. Although this was a step forward for Computer Services internally, the newly formed Help Desk was not performing as needed by the University community. It didn't take long to realize that moving staff and forwarding phone numbers didn't improve service for our customers. The newly formed Help Desk staff lacked the expertise to answer questions for the other

areas in Computer Services, continued to use the old processes, and there remained a lack of ownership and accountability for our customer's problems.

The goal of this project is to re-engineer the Help Desk into a cohesive group that will assist Computer Services to *support the instructional mission of the University, provide the core services for the University IT infrastructure, provide excellent customer service, develop the human resources within our organization, support the operations and continual improvement of the institution, and encourage efficient use of computing and networking among departments.*[1] The Help Desk staff and management identified the following key components that needed improvement in order to reach this goal:

- systematic methods and standard procedures for providing customer service and support
- increase the resolution of problems during the initial call by improving the base level of technical knowledge for Help Desk staff
- ownership of customer problems
- more communication between departments
- accountability for technician labor and materials

Analysis

In order to know where we were coming from and create a starting point, we began by having the staff document how they did things prior to the formation of the Help Desk. A team consisting of the management and co-workers from each of the selected departments being supported by the Help Desk was formed to review and ensure the new procedures addressed their needs, and we collectively began to standardize the

[1] University of South Carolina Computer Services, 2001-2002 Strategic Plan, (February 15, 2001), p.1

work flow process. An objective facilitator was appointed by senior management to moderate the meetings. We identified similar methods, consolidated the procedures, and reviewed what worked well and what didn't from each area. This process took an extensive amount of time, along with a great deal of compromise and commitment from the team to complete. We began in March 2002, met in weekly 2-hour sessions, and our final working document, Communication Business Rules, was finished in July 2002.

To continue to streamline the services provided by the Help Desk, a focus group was formed to evaluate the feasibility of a menu driven auto-attendant answering system for the main phone line. There was a trade-off that had to be considered for the customer between a computerized answering system and a live person to answer the main phone number. The focus group decided that an auto-attendant answering system would be a more efficient path for our customers to be directed to Help Desk staff that could handle their request. The focus group also thought it would reduce long wait times to have callers classify themselves as Student or Faculty/Staff, and identify their type of service request. We created a call flow document to outline the routing of incoming calls, (See Appendix A), and met with the telephone specialists to get advice on the most efficient way to design the system. An option was added for our customers to reach the other areas in Computer Services, which helped divert calls that were not intended for the Help Desk. The Help Desk staff was able to anticipate the type of support that our customers needed based on the menu system. The auto-attendant system has reporting features, such as statistics for call volume, abandoned calls, caller classification, etc., which have proved to be useful for managers to efficiently manage the resources of the Help Desk.

The Help Desk was initially staffed by consolidating administrative staff from several departments. Their scope of knowledge was limited to the area they came from and needed to be broadened for us to achieve our goals of increasing the amount of help provided during the initial call to the Help Desk, improving communication, and better serving our customers. We setup a cross-training program between the Help Desk staff and the technicians in the LAN/WAN, Telephony, and Desktop Support departments. Time was allocated for the staff to shadow each other and learn the details of their daily responsibilities. This moved the Help Desk staff toward developing an understanding of what is involved in completing common trouble tickets for our customers. Initial call resolution increased, and an added, unexpected benefit was that the technicians got a greater understanding and respect for what the Help Desk provides during the initial call and trouble ticket creation process. We also invited the management of each area within Computer Services to attend the Help Desk Staff Meetings to give an overview of their department and answer questions from the Help Desk staff. Although the Help Desk does not serve every department in Computer Services, this has added to the overall knowledge of the staff, enabling them to more effectively refer and advise customers. In addition, this training has provided a foundation to expand the service of the Help Desk to other areas of Computer Services in the future.

Documentation has been a significant part of this project. In addition to the procedures, the Help Desk staff created manuals that outline common problems and solutions during the cross-training and shadowing programs. The Help Desk staff attended formal training to refine their customer service and technical skills, and several attended the Help Desk Institute Conference in April 2002. The conference was an

opportunity to gain perspective and learn from other organization's experiences. The information from the training and conferences was used in the focus group and team meetings to make decisions.

Focusing on our customers, we wanted them to be able to call in once and feel confident that their request was going to be processed efficiently. To succeed in this, we needed to instill ownership of the customer's problem in the person that takes the call and creates the trouble ticket. Cross-training was well underway and we wanted to expand on this new knowledge. In order to ensure that requests are processed thoroughly, the Help Desk staff had to become engaged in the process. Communication between the Help Desk staff and the technicians working the trouble tickets was critical. Each person in the Help Desk was issued a 2-way radio just like the technicians carried. This allowed the staff to contact the technicians, find out where they were and what they were working on, and in some situations redirect the technicians to work on emergencies while the customer waited on the phone. Wow, they had the power to immediately contact and redirect the technicians and get them to emergency situations! Before, we had not been able to provide this level of service for our customers. There were some transitional glitches when technicians were redirected and it wasn't a crisis, but everyone continued working together to minimize these problems and keep the communication lines open. What about our customers whose requests are routine and not emergencies? Through the increased communication with the technicians and a deeper understanding of the work, the Help Desk could ensure that trouble tickets were routed to the correct people, prerequisite tasks were completed in the correct order, and downtime was minimized for our customers.

All of the training, documentation, and tools made a positive impact on the level of service provided by the Help Desk, but the management team could not ignore the considerable back-log of open trouble tickets in our system. Furthermore, it was unclear what was and what wasn't to be billed, so we performed extensive research on our billing practices. We consolidated the files in order to be able to pull old records to determine the work that was performed. When the original documentation could not be found, we had to tax the technician's memory or contact the customer. Still, many times we had to write-off trouble tickets due to lack of information. During tight budget times, it is very important to account and bill for all of the labor and materials for the services we provide. Management determined that all trouble tickets should be processed in our billing system within 60 days from the completion of the work. Technicians were required to provide the resolution, labor hours, and materials on all trouble tickets. Internal Audit was consulted and recommended we review active trouble tickets on at least a monthly basis. Therefore, standard reports that list past due trouble tickets by department were created by the Help Desk Manager and are distributed monthly to senior management at the Computer Services Director's Meeting. (See Appendix B) By the end of the fiscal year (July 2002), we were able to resolve the bulk of the billing questions and process the old tickets. To have the billing caught up by the end of the fiscal year made a positive impact on the budget for Computer Services.

Findings

In December 2002, we surveyed our customers to gauge their satisfaction with the changes we had incorporated into the Help Desk. (See Appendix C) We asked common demographic information so we could classify the respondents and know why and how

often they contact the Help Desk. In addition to wanting to know their overall experience, we decided to ask for their feedback on some of the changes we had made as part of this project, such as knowledge level, initial call resolution, communication to next level of support, and the auto-attendant on the phone line. The responses confirmed that we were making effective improvements for our customers. (See Appendix D) We had a fair distribution of respondents from each of our customer groups, and their overall experience with the service provided by the Help Desk was better than good. The average mean was 1.70 (faculty), 1.78 (staff), and 1.93 (students), with 1 being excellent and 5 being poor. The majority (88%) of the respondents contact the Help Desk between 0-5 times per month. It was critical to us to build trust and confidence with our customers. Although we know this takes time and effort, we feel that the responses show that we're on the right track and well on our way to meeting our goals.

- 95% of the respondents rated their overall experience with the Help Desk as average or better with 39.83% rating their experience as excellent.
- 90% agree that the staff of the Help Desk is polite and courteous; of which 54% rated strongly agree.
- 78% agreed that the Help Desk staff was knowledgeable; of which 42% rated strongly agree.
- 71% agreed that the Help Desk staff resolved their problem during the initial call; of which 33% strongly agree.
- 52% agreed that the auto-attendant helped direct their call efficiently and an additional 37% were neutral

Additional statistics have helped us focus our efforts and training. Technology is constantly changing and we must mold our support and services to meet the needs of our customers. We will continue to evaluate our services on a semi-annual basis.

The first big test for the re-engineered Help Desk was in August 2002 when the students returned to campus for the fall semester. Over 6,500 students live in on-campus housing and the call volume increases dramatically during the first few weeks after they return to campus. We must also continue to maintain service levels for the faculty and staff during this time. We received over 1,937 calls the first week students returned to campus. The average time for a customer to wait on hold was less than 4 minutes and the abandoned call percentage was less than 10%. The auto-attendant routed the calls, the staff was ready to handle the requests, and the training proved to be extremely helpful in the initial call resolution and in understanding what our customers needed. Although we do not have historical statistics to use as a comparison, we were very pleased with these results. We will continue to benchmark our progress and make adjustments to meet the needs of our customers.

Conclusion

The results of this project have been very positive. Instead of everyone doing their own thing in their own way, all work is now systematic and organized. Our work originates in the Help Desk in our ticket system, is resolved immediately when possible, assigned to a technician when necessary, and is completed and billed electronically. As with the earlier example when an employee wants to request a new data line and telephone line, there is only one number to call, and the Help Desk is knowledgeable on both technologies and can give the customer status information. Their trouble ticket is

entered and processed through the proper channels efficiently, and the work is completed and billed in a timely fashion. This has had an extremely positive impact on the way technicians receive and complete their work, internal and external communication, billing processes, our revenue, and the overall level of accountability for Computer Services. Due to the success of this re-engineering project, in the near future the other areas in Computer Services will also have front line services provided by the Help Desk.

BIBLIOGRAPHY

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University of South Carolina, Computer Services Help Desk, Communication Business Rules, (July, 2002)

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APPENDIX A

Communication Business Rules

All documentation is to be kept and filed with the ticket.

The closed Voice Mail tickets and accompanying documentation are housed in files maintained by the VM administrator. The HelpDesk maintains the files for network and phone communication tickets.

All requests will be worked from tickets. We no longer work any request based on phone calls or emails. The information must be entered into the current ticket-tracking system. All emails received into personal email accounts will be forwarded to the cshelpdesk@sc.edu account. This does not mean that we do not accept phones calls or emails from customers; it means that the request must entered into the current ticket entry system.

Janet and/or Rebecca will supply the Business Office with copies of the E911 documentation after have done their investigations for the COMAN/switch changes. Marilyn Bennett will be asked to make copies of the originals. This documentation will be compared against the emails the Business Office has been receiving directly from the departments.

Per Ruth Abercrombie, the email account support@gwm.sc.edu has been deleted. Instead of that account, use CSHelpDesk@sc.edu.

The Business Office will contact the HelpDeskManager with billing questions about phones and work orders that they cannot answer.

Communications must provide documentation for all entries on the Communications Credit Report. It must be noted that all requests for credits will be forwarded to the Business Office with appropriate documentation. The Business Office must receive all requests by the 20th of the month in order to get the JE entered into the USC accounting system before the next billing cycle.

Per Ella, notifications regarding billing questions, phones, etc. are to be e-mailed to the CSDBusinessOffice@sc.edu rather than specific employees. **Do not** use the CSDBusiness@gwm.sc.edu account.

Ruth is going to create a telephone request form similar to the voice mail form used by Melinda. We plan to have both forms as Acrobat .PDF's with a link from IRIS.

Debra and Ruth will create a script about the changes in procedures and possible questions about the new 2003 rates. Once approved, this script will be distributed to the Helpdesk and Communications area.

This group, along with David Asbill, will start meeting on a monthly basis to ensure that communication flows between the areas. Debra will serve as moderator.

Grant Accounts

Departments are not allowed to pay for phone or data service from most or all grant accounts. USC already collects a percentage of the grant for indirect costs. This would normally include installation costs, service repair costs, and monthly service costs. But you need to remember that each grant can have separate rules.

It is not our job to police expenditures of a grant. This is the responsibility of the principal investigator for the grant. **We do not refuse to create or work a ticket just because a grant account has been specified.** This is just a heads-up that accounts with a fund number that begin with F, G, K, J, L, H, S are grant accounts. If you receive a request that references one of these accounts, you might want to mention to the requestor that normally "Departments are not allowed to pay for phone or data service from most or all grant accounts".

For all Installations, Moves, and Deactivations of Phones:

Some form of written notification is required for the above activities: Telephone Request Form, emails, faxes, and written memos are acceptable. The Telephone Request Form, faxes and written memos must have a signature; emails are considered to have the electronic signature of the account owner. Unless the written request is a follow-up to a phone request from the customer, a phone call will be made to the requestor to verify the information. The date/time of the phone call and the person to whom you spoke will be noted on the ticket. The written notification must be stapled to the ticket for filing.

This verification callback will be done by the HelpDesk staff person who initially processes the ticket. If the Communications area receives a ticket without the callback information noted on the ticket, they need to contact the HelpDesk Manager.

Written verifications are not necessary for trouble tickets and feature changes.

We do not charge a phone to any department without the **written consent** of the department. This came up with the E911 verification. We do not charge a phone to an account based on any type of notification from another department.

The CSD Business Office will be notified in writing, accompanied by appropriate documentation, of all requests for account number changes, all activations of new lines installed with long distance and voicemail service, and long distance activation on existing lines. Activations include USC switch phones, Bell South phones, SCNet phones, and any other outside vendors.

The Business Office does not have to be notified on deactivations of USC switch lines.

APPENDIX A

Outside circuits and Phone Lines

We do not order outside circuits for non-USC departments. Examples of non-USC departments include, but are not limited to, the NAC, Marriott Food Services, the Russell House Bookstore (Barnes and Nobles), the Faculty House, Carolina Mall vendors, etc. If you have a question as to whether an entity is considered non-USC, contact Jim Curtis or Ella Wider.

Non-USC entities are responsible for ordering their own phone services from the outside vendor and all charges are to be billed directly to the entity. USC Communications only provides an end-point for the line.

For USC departments: written, signed documentation is required from the requestor; emails are sufficient. The requestor must supply the phone numbers (if known), responsible parties, what is being requested, and the department name and account number to which it will be billed. IRIS Tickets will be created for service request on these phone lines. All documentation from SCNet and Bell South will be noted on or attached to the ticket. **Any charges resulting from services for these lines are not entered into COMAN. See Below.**

No outside lines are to be installed without the consent of Jim Curtis, David Asbill, or Ella Wider.

The Business Office is responsible for processing the bills from Bell South and SCNet and other outside vendors.

They must be kept in the loop on installations and deactivations of all lines supplied by an outside vendor that will be charged back to a USC department. A copy of the documentation from the department and outside vendor, on both activations and deactivations, will be forwarded to the Business Office for their records.

All service ticket numbers (see below) received from Bell South or SCNet must be forwarded to the Business Office along with any quoted charges. The Business Office needs this information when reconciling the bills from the vendors.

APPENDIX A

Service Requests to SCNet

To report problems, call 1-888-864-7226 and **always acquire and retain** a ticket number from the SPOC. This ticket number **must be noted** on the IRIS/COMAN/Pinnacle ticket.

For escalation procedures of a trouble refer to the SCINet Trouble Reporting Procedures notebook.

If you need a paper copy of the SCNet ticket, call the toll free number 1-888-864-7226 and ask for a manager. Request a Post Mortem Report on the particular BellSouth or SCNet trouble ticket number. They will have a paper response to you within 3 days from beginning to end of the trouble reported. BellSouth and/or SCNet will reference the other's trouble ticket number within the Comment field.

Service Requests to Bell South

It's my understanding that trouble tickets are currently phoned in to a particular person. We do not receive a ticket number assigned by Bell South or any paperwork. **If my understanding is correct, this procedure must be changed.** We must always get and note the Bell South ticket number on the IRIS/COMAN/Pinnacle ticket.

As of 03/27/2002, any troubles generated on PRI trunking and other trunks NOT going through SC Net will be reported directly to BellSouth at 780-4652. This is per discussion with Dick Moons (BellSouth Service Manager) on 3/26/02. This will shorten response time to critical problems. We will need to **always acquire and retain** a Bell South ticket number. This ticket number **must be noted** on the IRIS/COMAN/Pinnacle ticket that will be created for tracking purposes.

BellSouth and/or SCNet will reference the other's trouble ticket number within the Comment field.

Special Heads Up:

When requesting a deactivation of an ISDN line or Circuit; circuits have two (2) through twenty-four (24) numbers attached.

Phone lines for the new **Greek Housing** must go through the Business Office. The Business Office is going to bill the Greek organization directly. The organization will be responsible for collecting from individual members.

APPENDIX A

COMAN Nodes Database

The HelpDesk staff and management will no longer make changes to the COMAN nodes tables and no longer verify in any way that the files are being updated properly. This includes primary nodes, secondary nodes, voice nodes, and asset tables.

Updates to the COMAN Nodes tables are the responsibility of the Communications area.

Voice Mail

Whenever a phone is deactivated in the COMAN Primary Node table and that phone has an active voice mail account, a separate voice mail work order will be created under the same COMAN/Pinnacle ticket. This voice mail work order will be forwarded to the VM administrator.

Whenever a phone is entered/activated in the COMAN Primary Node table and the requests includes voice mail, a separate voice mail work order will be created under the same COMAN/Pinnacle ticket. This voice mail work order will be forwarded to the VM administrator.

When the VM administrator receives a name change on a voice mail account, he/she will update the nodes tables.

APPENDIX A

Work Flow Process

1. The IRIS/Pinnacle ticket is created.

2. All Communication tickets are assigned to a switch administrator for switch translations, including update of switch E911 information.

3. Once switch work is complete, the switch administrator gives the ticket and all accompanying paperwork to one of two people:

   - Those tickets requiring further work by technicians are given to the HelpDesk Manager. **The HelpDesk manager is responsible for scheduling tasks for the universal data/telephone technicians. All special requests and "emergency situations" must be cleared with him/her before a technician is pulled from assigned tasks.**

   - Those tickets not requiring further work by technicians are given directly to the E911 administrator. The E911 administrator checks these tickets for thoroughness and updates the E911 database, if appropriate.

4. The HelpDesk Manager assigns those tickets given to him/her by the switch administrator to the technicians.

5. When a technician completes the work on an assigned ticket, he/she must return the paperwork to the E911 administrator before a period of 24-hours lapses. The E911 administrator reviews the paperwork and clears up any questions with the technician.

   Special Note: All information for tickets where the work has been completed will be entered into the E911 system by close of business of Friday.

6. The E911 administrator enters the appropriate information into the E911 database.

7. The E911 administrator gives the paperwork to the designated person, currently Rebecca Platts, to update the COMAN nodes tables. The VM administrator and the CSD Business Office will be notified as outlined in preceding paragraphs. Rebecca will also update switch E911 fields where changes have occurred from the original switch translation.

8. After the COMAN nodes updates are complete, **all** paperwork to the HelpDesk manager. Charges are entered, tickets are closed, and the paperwork is filed.

APPENDIX B

Active IRIS Ticket Summary

As of 1/9/2003

Group Name:	Current	30 days	60 days	90 days	2002 - 1st Qtr	2002 - 2nd Qtr	2002 - 3rd Qtr	2002 - 4th Qtr	2001	Total By Group
Communications	**65**	**64**	**110**	**19**	**7**	**17**	**34**		**5**	**321**
Created for this group:	99	254	419	335	1465	1171	1432		3036	
Networking	**43**	**33**	**16**	**14**	**16**	**8**	**32**		**1**	**163**
Created for this group:	125	260	366	443	1111	1494	1780		4671	
Residence Hall	**14**	**0**	**1**	**6**	**0**	**0**	**6**		**0**	**27**
Created for this group:	21	43	102	167	665	199	1331		2403	
Software Support	**5**	**7**	**5**	**0**	**0**	**1**	**4**		**0**	**22**
Created for this group:	13	45	59	126	81	114	324		360	
Total of all Groups	**127**	**104**	**132**	**39**	**23**	**26**	**76**		**6**	**533**
Total created all groups:	258	602	946	1071	3322	2978	4867		10470	

APPENDIX C

Computer Services Help Desk Survey
Administered via a web site <http://applemac.csd.sc.edu/HelpDesk>
November 2002

Thank you for taking the time to complete the following survey. The Computer Services Help Desk is interested in your opinion and experience with the service and support we provide. We will use your feedback to help us evaluate and improve our services.

What is your Primary status with USC? (Check only one)
_____ Student _____ Faculty _____ Staff

For an average month, how often do you contact the Help Desk?
_____ 0 – 5 times
_____ 6 – 10 times
_____ 11 – 20 times
_____ 21 or more times

How would you rate your overall experience when you have called the Help Desk for service?
_____ Excellent _____ Good _____ Average _____ Poor _____ Bad

What service was the basis of the most recent experience you have had with the Help Desk:
_____ Application Support
_____ Desktop Support
_____ Email Support
_____ Internet Support
_____ Server Support
_____ Telephone Support
_____ Training Support
_____ USC Network Support
_____ Other: (please specify) _____

If you selected "Other" on the previous screen, please specify the type of service that you requested the last time you contacted the Help Desk.

Please rate the service and support you received during your most recent experience with the Help Desk:

The Help Desk Technician was polite and courteous
_____ Strongly Disagree _____ Disagree _____ Neutral _____ Agree _____ Strongly Agree

APPENDIX C

The Help Desk Technician was knowledgeable
_____ Strongly Disagree _____ Disagree _____ Neutral _____ Agree _____ Strongly Agree

The Help Desk Technician resolved the request or questions during the initial phone call
_____ Strongly Disagree _____ Disagree _____ Neutral _____ Agree _____ Strongly Agree

If the request was not resolved during the initial phone call, the Help Desk Technician effectively communicated the request to the 2nd level support technicians
_____ Strongly Disagree _____ Disagree _____ Neutral _____ Agree _____ Strongly Agree

The automated phone system helped direct my call efficiently
_____ Strongly Disagree _____ Disagree _____ Neutral _____ Agree _____ Strongly Agree

The service hours are convenient (M-F, 8am – 5pm)
_____ Strongly Disagree _____ Disagree _____ Neutral _____ Agree _____ Strongly Agree

The time required to complete your request was

_____ Less than expected
_____ About what was expected
_____ Longer than expected
_____ Was not completed

Would you contact the Help Desk for assistance again?

_____ Yes _____ No

Comments:

You have Completed the Help Desk Survey. Thank you for taking the time to share your thoughts and opinions so that we may continue to provide the best possible service and support to the USC community. If you have reached this page but would like to retake the survey, please Delete the cookies in your Internet Browser, or use another Internet Browser. If you have questions or computing problems, please contact the Computer Services Help Desk via the web at: http://cshelpdesk.csd.sc.edu **or phone (803) 777-1800**

Appendix D
Computer Services Customer Satisfaction Survey Results
December, 2002

The FREQ Procedure

Status

Q1	Frequency	Percent
Faculty	20	16.95
Staff	54	45.76
Student	44	37.29

Contacts per month

Q2	Frequency	Percent
0-5 times	104	88.14
6-10 times	10	8.47
11-20 times	2	1.69
21 or more	2	1.69

Overall Experience

Q17	Frequency	Percent
Excellent	47	39.83
Good	50	42.37
Average	16	13.56
Poor	5	4.24

Service Needed

Q18	Frequency	Percent
Other	13	11.02
App/Software Support	26	22.03
Desktop Support	16	13.56
Email Support	10	8.47
Internet Support	14	11.86
Server Support	6	5.08
Telephone Support	20	16.95
Training Support	3	2.54
USC Network Support	10	8.47

The FREQ Procedure

Technician polite and courteous

Q6	Frequency	Percent
Strongly Agree	64	54.24
Agree	43	36.44
Neutral	9	7.63
Strongly Disagree	2	1.69

Technician knowledgeable

Q7	Frequency	Percent
Strongly Agree	50	42.37
Agree	42	35.59
Neutral	17	14.41
Disagree	5	4.24
Strongly Disagree	4	3.39

Resolved in inital call

Q8	Frequency	Percent
Strongly Agree	28	33.33
Agree	32	38.10
Disagree	18	21.43
Strongly Disagree	6	7.14

Frequency Missing = 34

Effective pass to 2nd level support

Q9	Frequency	Percent
Strongly Agree	35	33.33
Agree	38	36.19
Neutral	19	18.10
Disagree	9	8.57
Strongly Disagree	4	3.81

Frequency Missing = 13

Appendix D
Computer Services Customer Satisfaction Survey Results
December, 2002

The FREQ Procedure

Automated phone system efficient

Q11	Frequency	Percent
Strongly Agree	30	25.42
Agree	32	27.12
Neutral	44	37.29
Disagree	9	7.63
Strongly Disagree	3	2.54

Service hours convenient

Q12	Frequency	Percent
Strongly Agree	32	27.12
Agree	44	37.29
Neutral	27	22.88
Disagree	12	10.17
Strongly Disagree	3	2.54

Time required

Q19	Frequency	Percent
Less than Expected	30	25.42
About what was Expected	69	58.47
Longer than Expeceted	16	13.56
Was not Expected	3	2.54

Would contact Help Desk again

Q14	Frequency	Percent
Yes	109	92.37
No	9	7.63

Appendix D
Computer Services Customer Satisfaction Survey Results
December, 2002

The MEANS Procedure

Variable	Label	Mean
Q6	Technician polite and courteous	1.58
Q7	Technician knowledgeable	1.91
Q8	Resolved in inital call	2.31
Q9	Effective pass to 2nd level support	2.13
Q11	Automated phone system efficient	2.35
Q12	Service hours convenient	2.24

---------- Status=Faculty ----------

The MEANS Procedure

Analysis Variable : Q17 Overall Experience

Mean
1.70

---------- Status=Staff ----------

Analysis Variable : Q17 Overall Experience

Mean
1.78

---------- Status=Student ----------

Analysis Variable : Q17 Overall Experience

Mean
1.93